

**DEPARTMENT OF TRANSPORTATION**

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 70.28**WELDING INSPECTION REPORT****Resident Engineer:**Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-004608**Date Inspected:** 14-Nov-2008**Project Name:** SAS Superstructure**OSM Arrival Time:** 830**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1700**Contractor:** Japan Steel Works**Location:** Muroran, Japan**CWI Name:** Chung-Fu Kuan**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Tower, Jacking and Deviation Saddles**Summary of Items Observed:**

The following report is based on METS observations at Japan Steel Works (JSW) in Muroran Japan. Current work: Casting, machining and nondestructive testing of Saddles.

**Fabrication Shop 4****T1-1 Base**

No work performed on this date.

**T1-2 Base**

The QA inspector observed the in process welding of the structural steel plates for the Tower Saddle Base T1-2.

The JSW welding personnel Mutuo Kashiwada, ID 08-2008 continued the fill welding of joint 8Y-7V (2-3) in the flat position. Masatugu Kobayashi, ID 08-5154 continued the fill welding of joint 8Y-8V (2-3) in the flat position.

The welding was performed utilizing the gas shielded flux cored arc welding process per the welding procedure specification (WPS) SJ-3012-3. The welding parameters and heat control were monitored by Intertek Testing Services Quality Control (QC) inspector Mr. Chung-Fu Kuan at periodic intervals. The minimum preheat temperature of 160°Celsius and maximum interpass temperature of 260°Celsius were verified to meet the WPS requirements by Mr. Kuan and the QA inspector utilizing Tempilstik temperature indicators. This data was entered into the QC inspector's daily log, identifying the location on a weld map.

**T1-3 Base**

The QA inspector observed the in process assembly layout and fit-up operation of the structural steel plates for the

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Tower Saddle Base T1-3. The center rib plates were aligned on the base plate and to the stem plate. The JSW fitter personnel Kiyotaka Koanagi performed the layout in accordance with approved drawings. The JSW welding personnel Kiyotaka Koyanzgi, ID 08-5144 performed the in process tack welding utilizing the Shielded Metal Arc Welding (SMAW) process per the welding procedure specification (WPS) SJ-3012-2. The welding parameters and heat control were monitored by Intertek Testing Services Quality Control (QC) inspector Mr. Chung-Fu Kuan at periodic intervals. The work was not completed on this date and does not appear to meet the minimum requirements of the welding procedure specification and contract documents.

### W2-E1

The QA inspector observed the in process repair welding operation of the structural steel plates for the West Deviation Saddle Base W2-E1. The JSW welding personnel Mamoru Kubota, ID 74-3666 performed the welding of joint 8y-16U in the weld access hole where minor indications discovered during MT inspection removed by grinding. The welding was performed utilizing the shielded metal arc welding (SMAW) process per the welding procedure specification (WPS) SJ-3011-6. The welding was performed in the 2G (Horizontal) position. The welding parameters and heat control were monitored by Intertek Testing Services Quality Control (QC) inspector Mr. Chung-Fu Kuan at periodic intervals. The minimum preheat temperature of 160 degrees Celsius and maximum interpass temperature of 260 degrees Celsius was verified to meet the WPS requirements by Mr. Kuan and the QA inspector utilizing Tempilstik temperature indicators. This data was entered into the QC inspector's daily log, identifying the location on a weld map.

The QA inspector observed the in process repair welding operation of the structural steel base plate for the West Deviation Saddle Base W2-E1. The JSW welding personnel Mamoru Kubota, ID 74-3666 performed the welding of two minor dents in the base plate caused by rough handling. The QA inspector verified the indications matched the submitted repair procedure. Indication 2-1 was located on the edge of base plate 1-3 40mm from rib plate 1-8 with a width of 15mm, length of 13mm and a depth of 3mm. Indication 2-2 was located on the edge of base plate 1-3 20mm from rib plate 1-6 with a width of 20mm, length of 10mm and a depth of 4mm. The welding was performed utilizing the shielded metal arc welding (SMAW) process per the welding procedure specification (WPS) SJ-3011-6. The welding was performed in the 2G (Horizontal) position. The welding parameters and heat control were monitored by Intertek Testing Services Quality Control (QC) inspector Mr. Chung-Fu Kuan at periodic intervals. The minimum preheat temperature of 160 degrees Celsius and maximum interpass temperature of 260 degrees Celsius was verified to meet the WPS requirements by Mr. Kuan and the QA inspector utilizing Tempilstik temperature indicators. The QA inspector observed that the preheat was maintained until the repair was complete and then the area was monitored by Mr. Kuan to maintain some heating of the repair area to avoid rapid cooling. This data was entered into the QC inspector's daily log, identifying the location on a weld map. The QA inspector periodically observed The Nikko Inspection Services QC/NDT technician Mr. Kazuya Kobayashi perform magnetic particle (MT) testing of West Deviation Saddle Base W2-E1 casting to fabricated base welds. The MT was performed in accordance with ASTM standard E709 and Nikko Inspection Services procedure SF-MT-01 using the yoke method with dry visible powder. The testing was evaluated in accordance with the contract special provisions. 1 relevant indication was marked by Mr. Kobayashi. The indication was found at weld 8y-16U in the weld access hole. The indication was excavated and reexamined by MT. The excavation was found to be acceptable. The testing was not completed on this date and the work appears to meet the minimum requirements of the contract specifications.

Foundry

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### Casting W2-E2

The QA inspector observed the in process casting repair welding on West Deviation Saddle casting W2E2. The welding was performed to build up the thickness of the ribs in areas that were found to not meet the minimum thickness as shown on the approved drawings. The repair locations and repair details for this casting were submitted as number 000712, revision 00. The JSW welding personnel Ichinoseki Yoshikazu, ID 02-4997 continued the repair welding of repair 2-6 as shown in section D-D. Kozuya Komai, ID 06-8002 continued the repair welding of repair 3-10 as shown in section I-I. Yoshio Kabutomori, ID 06-8000 continued the repair welding of repair 3-5 as shown in section G-G. The repairs were performed utilizing Shielded Metal Arc Welding (SMAW) per the welding procedure specification (WPS) SJ 3026-2. The welding parameters and heat control were monitored by JSW welding engineer Mr. Imai at periodic intervals. The minimum preheat temperature of 150° Celsius and maximum interpass temperature of 260° Celsius was verified to meet the WPS requirements by the QA inspector utilizing Tempilstik temperature indicators. The SMAW welding average amperage and voltage by clamp type meter and travel speed were verified to be within the welding procedure specification parameter range of 180 amps to 240 amps, 22 volts to 26 volts and travel speed of 115 to 280 mm per minute by the QA inspector. The work was not completed on this date and appears to meet the minimum requirements of the welding procedure specification and contract documents.

### Casting W2-W3

Two JSW employees were observed removing excess riser material from the exterior surface of the casting W2-W3. The material was removed utilizing the Air-Carbon Arc method. Work was not completed on this date and appears to meet the minimum requirements of the contract documents.

### Casting T1-2

The QA inspector periodically observed the Nikko Inspection Services QC/NDT technician Mr. Harumi Kohama perform shear wave ultrasonic testing of casting T1-2 in the trough areas. The testing was performed with a 2 MHz, 8mm by 9mm square 45 degree shear wave transducer. The testing was performed in accordance with JSW procedure specification number SJ-2878 revision 2. Mr. Kohama reported that the preliminary examination of the trough areas was complete and the casting was scheduled to be rotated to allow access to the exterior surfaces to complete the ultrasonic testing. The testing was not completed on this date and the work appears to meet the minimum requirements of the contract specifications.

### Casting T1-3

No work performed on this date.

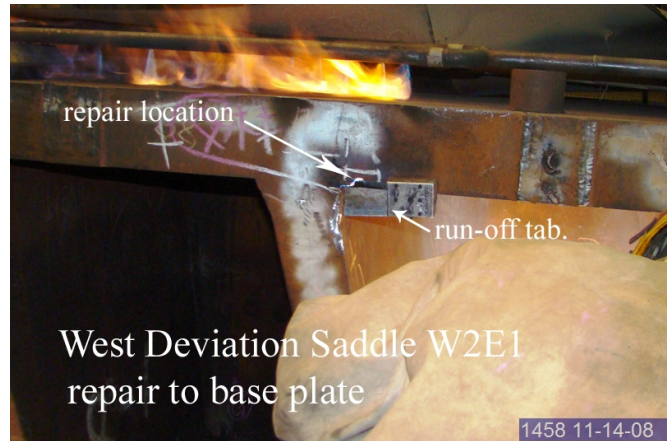
The following digital photographs illustrate observations of the activities being performed.

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### Summary of Conversations:

There were general conversations with Intertek Testing Services Certified Welding Inspector Mr. Chung-Fu Kuan relative to the location of the welding and inspection personnel in the fabrication shop number 4 and as noted above.

### Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Venkatesh Iyer, (858) 967-6363, who represents the Office of Structural Materials for your project.

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<b>Inspected By:</b>	Lanz,Joe	Quality Assurance Inspector
<b>Reviewed By:</b>	Brasel,Ron	QA Reviewer

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